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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,765	12/26/2001	Hong Man Moon	8733.514.00	5858
30827	7590	09/29/2004	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP			NGUYEN, HOAN C	
1900 K STREET, NW			ART UNIT	
WASHINGTON, DC 20006			PAPER NUMBER	
			2871	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/025,765

Applicant(s)

MOON, HONG MAN

Examiner

HOAN C. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,5,6,9,10,12,14-25,28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 5-6, 9-10, 12, 14-25, and 28-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

Applicant's arguments with respect to Amended claims 1, 5, 9, 12, 14 and 24 based on the amendment filed on 16 July 2004 have been considered but are moot in view of the new ground(s) of rejection. Therefore, this is Final action.

Applicant cancelled claims 3-4, 7-8, 11, 13 and 26-27. Therefore, ONLY claims 1-2, 5-6, 9-10, 12, 14-25 and 28-29 are pending.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2, 5-6, 9-10, 15, 20-21, 23-25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jingu et al. (JP403228025) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520).

In regard to claims 1-2, 5-6, 9-10 and 24-25, Jingu et al. teaches (Fig. 1) LCD device comprising:

- first and second etched glass substrates 1 and 2 having normally refractive index of 1.52;

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- a liquid crystal layer 4 between the first and second etched substrates;
- passivation films (moisture-proof films 7 and 8) outer surface of the first and second etched substrates.

wherein

Claims 23 and 29:

- assembling the first and second substrates with each other includes a sealing pattern 3;

the following features are inherent for liquid crystal display:

Claim 15:

- injecting a liquid crystal between the first and second substrates after assembling the first and second substrates with each other;

However, Jingu et al. fail to disclose (a) substrate being etched with etchant (claim 20), (b) the passivation film made of BenzoCycloButten (BCB), which is organic material and has refractive index of about 1.6, which is 10% difference of refractive index of glass substrates.

Nakai et al. teach substrate being etched with etchant HF according to claims 20 and 21 for cleaning (col. 8 lines 14-15).

Kimura teaches (abstract) LCD device comprising the passivation film made of BenzoCycloButtene (BCB), which is organic material and has refractive index of about 1.6, which is 10% difference of refractive index of glass substrates

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for easily controlling polymerization reaction by vapor-depositing BCB derivative on substrate and post-polymerizing the deposited derivative.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device comprising as Jingu et al. disclosed with (a) substrate being etched for cleaning as taught by Nakai et al. (col. 8 lines 14-15): (b) the passivation film made of BenzoCycloButten (BCB), which is organic material for easily controlling polymerization reaction by vapor-depositing BCB derivative on substrate and post-polymerizing the deposited derivative as taught by Kimura (abstract).

2. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jingu et al. (JP403228025) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520) as claims 1-2, 5-6, 9-10, 15, 20-21, 23-25 and 29 above, in further view of Walters et al. (US6150430A).

Jingu et al. fail to disclose the features in claim 12.

Walter et al. teach (col. 2 lines 40-45 and col. 8 lines 39-46) the organic film being formed by a spin coating process for applying the adhesive layer-forming composition.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device as Jingu et

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al. disclosed with the organic film being formed by a spin coating process for preparing a thin organic film as taught by Walter et al. (col. 8 lines 39-46).

1. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jingu et al. (JP403228025) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520) as claims 1-2, 5-6, 9-10, 15, 20-21, 23-25 and 29 above and in further view of Tsuchiya et al. (US5733177A).

Jingu et al. fail to disclose the features in claims 16-19.

Tsuchiya et al. teach the method further comprising

Claim 16 and 18-19:

- polishing mechanically (e.g. sandpaper or polisher) the surface of the first and second substrates after etching a surface of at least one of the first and second substrates for obtaining a high efficiency, high accuracy mirror finished surface (col. 1 lines 65-66).

Claim 17:

- polishing the assembled substrate while spray coolant on the assemble substrate for adjusting the working temperature rise due to heat generated by the above frictional movement (col. 2 lines 20-23).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device as Jingu et al. disclosed with polishing mechanically (e.g. sandpaper or polisher) the surface

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of the first and second substrates after etching a surface of at least one of the first and second substrates for obtaining a high efficiency, high accuracy mirror finished surface as taught by Tsuchiya et al. (col. 1 lines 65-66) and polishing the assembled substrate while spray coolant on the assemble substrate for adjusting the working temperature rise due to heat generated by the above frictional movement (col. 2 lines 20-23) as taught by Tsuchiya et al.

3. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jingu et al. (JP403228025) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520) as claims 1-2, 5-6, 9-10, 15, 20-21, 23-25 and 29 above, in further view of Dob (US20020079289A1).

Jingu et al. fail to disclose the features in claims 21-22.

Dob teaches the etchant being an HF solution by exothermic reaction between the glass substrate and the etchant for non-uniformly etching the surface of the glass substrate (paragraph 50<sup>th</sup>).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device as Sekimura disclosed with the etchant is an HF solution by exothermic reaction between the glass substrate and the etchant for non-uniformly etching the surface of the glass substrate (paragraph 50<sup>th</sup>).

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2. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jingu et al. (JP403228025) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520) as claims 1-2, 5-6, 9-10, 15, 20-21, 23-25 and 29 above.

Jingu et al. fail to disclose the features in claims 28.

It is well-known in the art that the TFT built in the passive-type LCD device for improving image quality with changing into active-type LCD device, wherein TFT including gate electrode and source and drain electrodes on the substrate.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device as Sekimura disclosed with TFT built in the passive-type LCD device for improving image quality with changing into active-type LCD device, wherein TFT including gate electrode and source and drain electrodes on the substrate.

4. Claims 1-2, 5-6, 9-10, 14-15, 20-21, 23-25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (JP407199165) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520).

In regard to claims 1-2, 5-6, 9-10 and 24-25, Aoki et al. teach (Fig. 2) LCD device comprising:

- first and second etched glass substrates 1 having normally refractive index of 1.52;
- a liquid crystal layer 4 between the first and second etched substrates;



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- passivation films (moisture resistance films 1) outer surface of the first and second etched substrates.

wherein

Claim 14:

- because the substrates 2 with passivation films are formed before bonding to make the LCD; therefore, liquid crystal between substrates is injected after forming the passivation layers on the outer surface of the substrates;

The following features are inherent for liquid crystal display:

Claim 15:

- injecting a liquid crystal between the first and second substrates after assembling the first and second substrates with each other;

Claims 23 and 29:

- assembling the first and second substrates with each other includes a sealing pattern.

However, Aoki et al. fail to disclose (a) substrate being etched, (b) the passivation film made of BenzoCycloButten (BCB), which is organic material and has refractive index of about 1.6, which is 10% difference of refractive index of glass substrates.

Nakai et al. teach substrate being etched with etchant HF according to claims 20 and 21 for cleaning (col. 8 lines 14-15).

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Kimura teaches (abstract) LCD device comprising the passivation film made of BenzoCycloButtene (BCB), which is organic material and has refractive index of about 1.6, which is 10% difference of refractive index of glass substrates for easily controlling polymerization reaction by vapor-depositing BCB derivative on substrate and post-polymerizing the deposited derivative.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device comprising as Aoki et al. disclosed with (a) substrate being etched for cleaning as taught by Nakai et al. (col. 8 lines 14-15): (b) the passivation film made of BenzoCycloButten (BCB), which is organic material for easily controlling polymerization reaction by vapor-depositing BCB derivative on substrate and post-polymerizing the deposited derivative as taught by Kimura (abstract).

3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (JP407199165) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520) as claims 1-2, 5-6, 9-10, 14-15, 20-21, 23-25 and 29 above, in further view of Walters et al. (US6150430A).

Aoki et al. fail to disclose the features in claim 12.

Walter et al. teach (col. 2 lines 40-45 and col. 8 lines 39-46) the organic film being formed by a spin coating process for applying the adhesive layer-forming composition.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device as Aoki et al. disclosed with the organic film being formed by a spin coating process for preparing a thin organic film as taught by Walter et al. (col. 8 lines 39-46).

3. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (JP407199165) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520) as claims 1-2, 5-6, 9-10, 14-15, 20-21, 23-25 and 29 above and in further view of Tsuchiya et al. (US5733177A).

Aoki et al. fail to disclose the features in claims 16-19.

Tsuchiya et al. teach the method further comprising

Claim 16 and 18-19:

- polishing mechanically (e.g. sandpaper or polisher) the surface of the first and second substrates after etching a surface of at least one of the first and second substrates for obtaining a high efficiency, high accuracy mirror finished surface (col. 1 lines 65-66).

Claim 17:

- polishing the assembled substrate while spray coolant on the assemble substrate for adjusting the working temperature rise due to heat generated by the above frictional movement (col. 2 lines 20-23).

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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device as Aoki et al. disclosed with polishing mechanically (e.g. sandpaper or polisher) the surface of the first and second substrates after etching a surface of at least one of the first and second substrates for obtaining a high efficiency, high accuracy mirror finished surface as taught by Tsuchiya et al. (col. 1 lines 65-66) and polishing the assembled substrate while spray coolant on the assemble substrate for adjusting the working temperature rise due to heat generated by the above frictional movement (col. 2 lines 20-23) as taught by Tsuchiya et al.

3. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (JP407199165) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520) as claims 1-2, 5-6, 9-10, 14-15, 20-21, 23-25 and 29 above, in further view of Dob (US20020079289A1).

Aoki et al. fail to disclose the features in claims 21-22.

Dob teaches the etchant being an HF solution by exothermic reaction between the glass substrate and the etchant for non-uniformly etching the surface of the glass substrate (paragraph 50<sup>th</sup>).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device as Aoki et al. disclosed with the etchant is an HF solution by exothermic reaction between the

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glass substrate and the etchant for non-uniformly etching the surface of the glass substrate (paragraph 50<sup>th</sup>).

4. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (JP407199165) in view of Nakai et al. (US 6380479 B2) and Kimura (JP401313520) as claims 1-2, 5-6, 9-10, 14-15, 20-21, 23-25 and 29 above.

Aoki et al. fail to disclose the features in claims 28.

It is well-known in the art that the TFT built in the passive-type LCD device for improving image quality with changing into active-type LCD device, wherein TFT including gate electrode and source and drain electrodes on the substrate.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify LCD device as Aoki et al. disclosed with TFT built in the passive-type LCD device for improving image quality with changing into active-type LCD device, wherein TFT including gate electrode and source and drain electrodes on the substrate.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

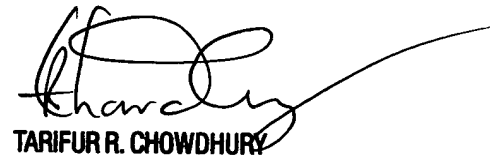
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim H Robert can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HOAN C. NGUYEN  
Examiner  
Art Unit 2871

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TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER